How does IMS Learning Design wo k?

Colin Tattersall

The Open University of the Netherlands & the UNFOLD project

Agenda

- What’s the specification about?
- How to use it?

A word on Learning Objects

- Units of Content
  - An animation of how a fridge works
  - A map of the middle east
  - An article on the occurrence of foot diseases in members of the Dutch Government
- The idea:
  - pick-and-mix these units from repositories to create or adapt an e-learning course which is then presented to the learner

Search Materials: GO

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Browse Materials by Subject

Click on the ▸ symbol to see sub-categories. Click on the category name to see items in that category.

Browse Path: All

- Arts (293)
- Business (2067)
- Education (1539)
- Humanities (1695)
- Mathematics and Statistics (782)
- Science and Technology (4488)
- Social Sciences (791)

Results Path: All > Humanities

Your search found 1695 materials
Category: All/Humanities
Items 1 - 10 shown.

Default sort order by rating. Resort by: Title Go

Title | Author | Date Entered | Rating | Item Type

Crisis at Fort Sumter (Simulation)
Author: Richard B. Latner
"Crisis at Fort Sumter" is an interactive historical simulation and decision making program. Using...
Location: http://www.tulane.edu/~latner/
Added: Mar 26, 2003

Peer Reviews (1) avg:☆☆☆☆☆
Member Comments (none)
Assignments (none)
Collections (6)

Ojala que llueva cafe (Tutorial)
Author: Barbara K. Nelson
A guided-reading selection in Spanish based on a song by Dominican artist Juan Luis Guerra, optional...

Peer Reviews (1) avg:☆☆☆☆☆
Member Comments (none)
Assignments (none)
Collections (13)

From Learning Objects to Learning Activities

- What about situations in which learning happens without learning objects?
- What about when several learners cooperate to solve a problem?
- Where are the teachers and staff?

- Need a way of describing the whole teaching-learning process, not just the learning objects involved
  - pedagogy, *the act or process of teaching*

- **IMS Learning Design: Interoperability of e-learning content & processes**

What IMS LD is not ….

- Not an instructional method
  - *… can be used to describe many methods*
- Not pedagogically neutral in the sense of not caring about pedagogy
  - *… rather it requires the designer to be explicit about his/her pedagogical choices in the learning process*
- Not a guarantee of good education
  - *… can use it to describe poor learning processes*
- Not a programming language
  - *… although many characteristics are shared*

What is IMS LD then?

- A learning technology specification
- IMS Learning Design is used to model units of learning
  - A unit of learning (**UoL**) is any delimited piece of education or training, such as a course, a module, a lesson, etc.
  - more than just a collection of ordered resources to learn
  - activities, assessments, services and support facilities provided by teachers, trainers and other staff members.
- A **model** of the activities, content, tools and workflow for learners and staff to accomplish one or more learning objectives
  - Who does what, when, with whom and using which learning objects and services

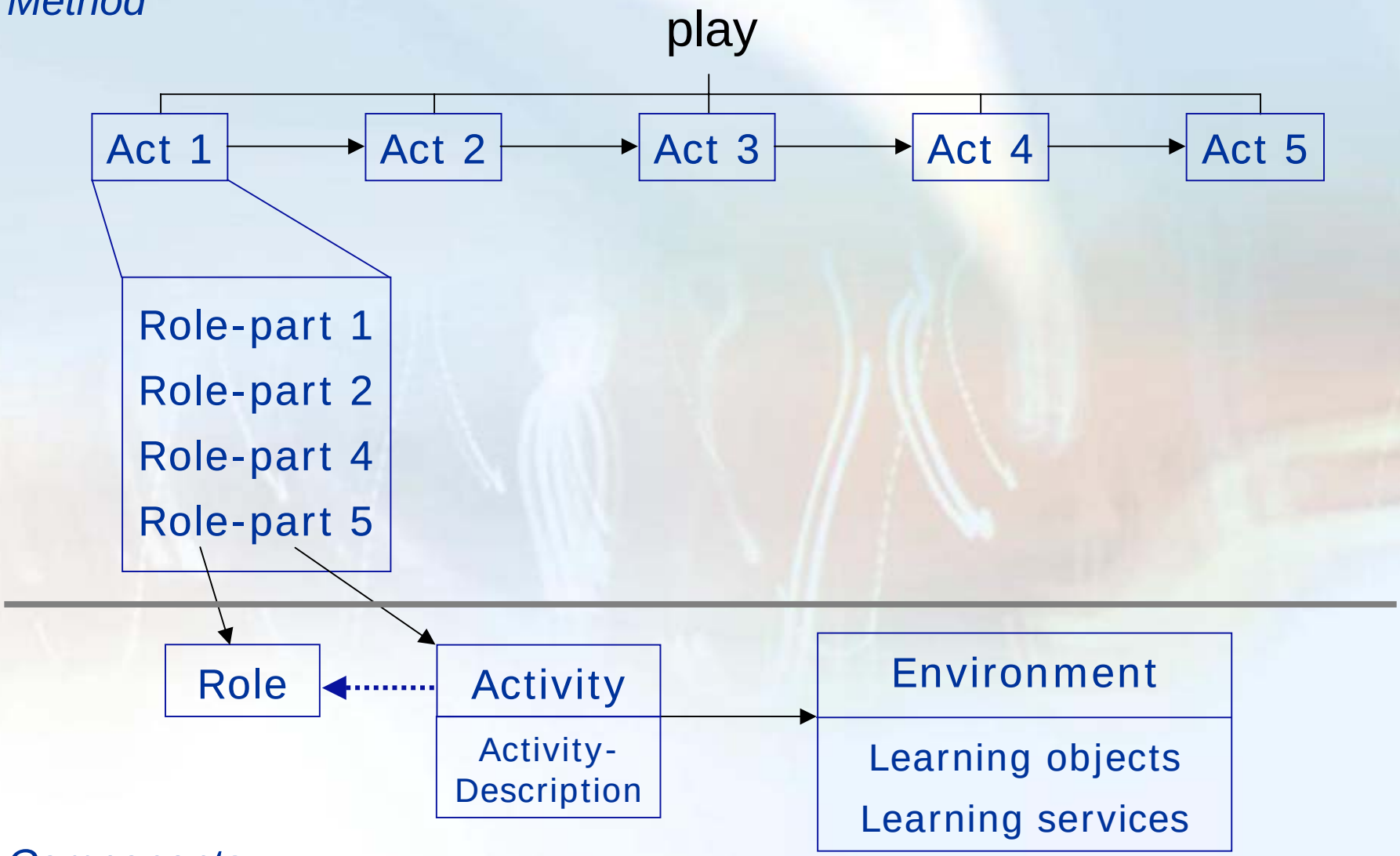
What's a model and what use is it?

- Learning processes are described (who does what, when, etc) using the concepts in the IMS LD language;
  - For example, we can create a model of problem based learning
- These models can be 'played' in an IMS-LD-aware player;
  - Analogous to marking-up learning materials in HTML and having a browser interpret them

IMS Learning Design meta-model

- Stage-play metaphor
  - People act in different **roles**
  - working towards certain **objectives**
  - by performing **learning and/or support activities**
  - within an **environment**, consisting of **learning objects and services** used in the performance of the activities.

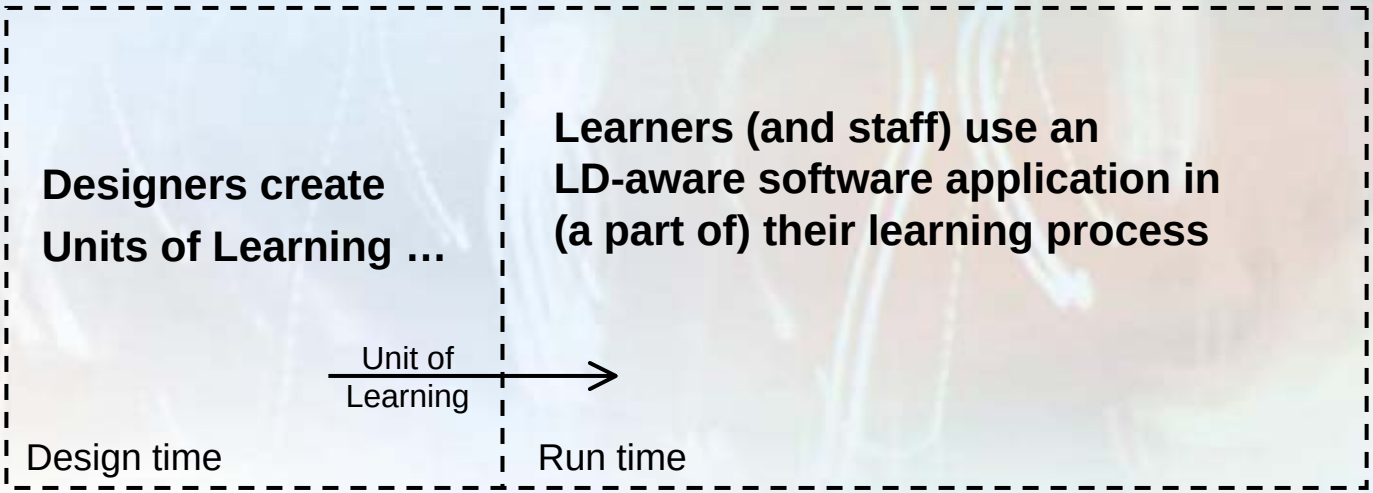
Method



Components

with thanks to Bill Olivier of CETIS

How does IMS LD work, then?



The design process

Start

Finish

```
<?xml version="1.0" encoding="UTF-8"?>
<imscp:manifest xmlns:imscp="http://www.imsglobal.org/xsd/imscp_v1p1" xmlns="
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="
http://www.imsglobal.org/xsd/imsld_v1p0  IMS_LD_Level_B.xsd " identifier="What-
    <imscp:organizations>
        <learning-design identifier="LD-What-Is-Greatness" uri="WIGC" level="B">
            <title>What is Greatness</title>
            <components>
                <roles>
                    <learner identifier="Learner">
                        <title>Learner</title>
                    </learner>
                    <staff identifier="Tutor">
                        <title>Tutor</title>
```

Learning to listen to jazz - Microsoft Internet Explorer provided by Open Universiteit Nederland

Bestand Bewerken Beeld Favorieten Extra Help

Vorige Zoeken Favorieten Media

Adres http://educontent.ou.nl/webplayer/WPController

Ga naar Koppelingen

To Do | Tools & Resources | Find | historical rou | rse info | Help

Learning Activities, structured into sequences and selections

To Do

- before you start
- orientation
- historical route
  - New Orleans style
    - blues
    - rags
    - songs
    - New Orleans
  - swing
  - reflection in the meantime
  - bebop
  - free jazz
- No Title

Tools & Resources

- complete environment
- complete environment
  - start test
  - sources
  - portfolio
  - glossary

The environment associated with the selected activity

ize About

- *melody* : the sequence from a high to a low tetrachord gives the melody a falling line;
- *rhythm* : virtually absent as the singer allows himself to be led by his emotional response to the lyrics.

Power

Power by Mattie Wigley and Congregation

• *form* : ques

An activity description for the selected activity

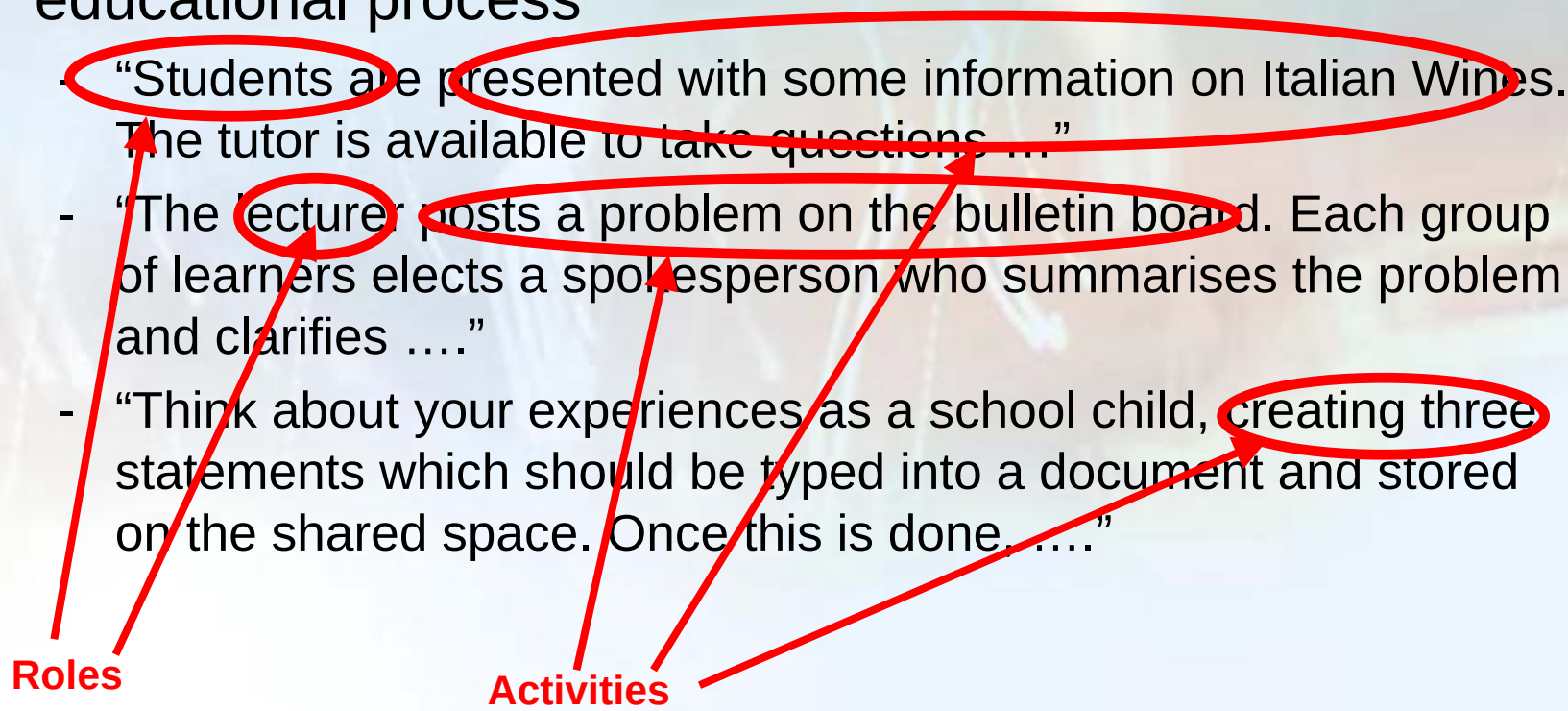
Edubox

Internet

Start 16:33

A possible learning design process (1)

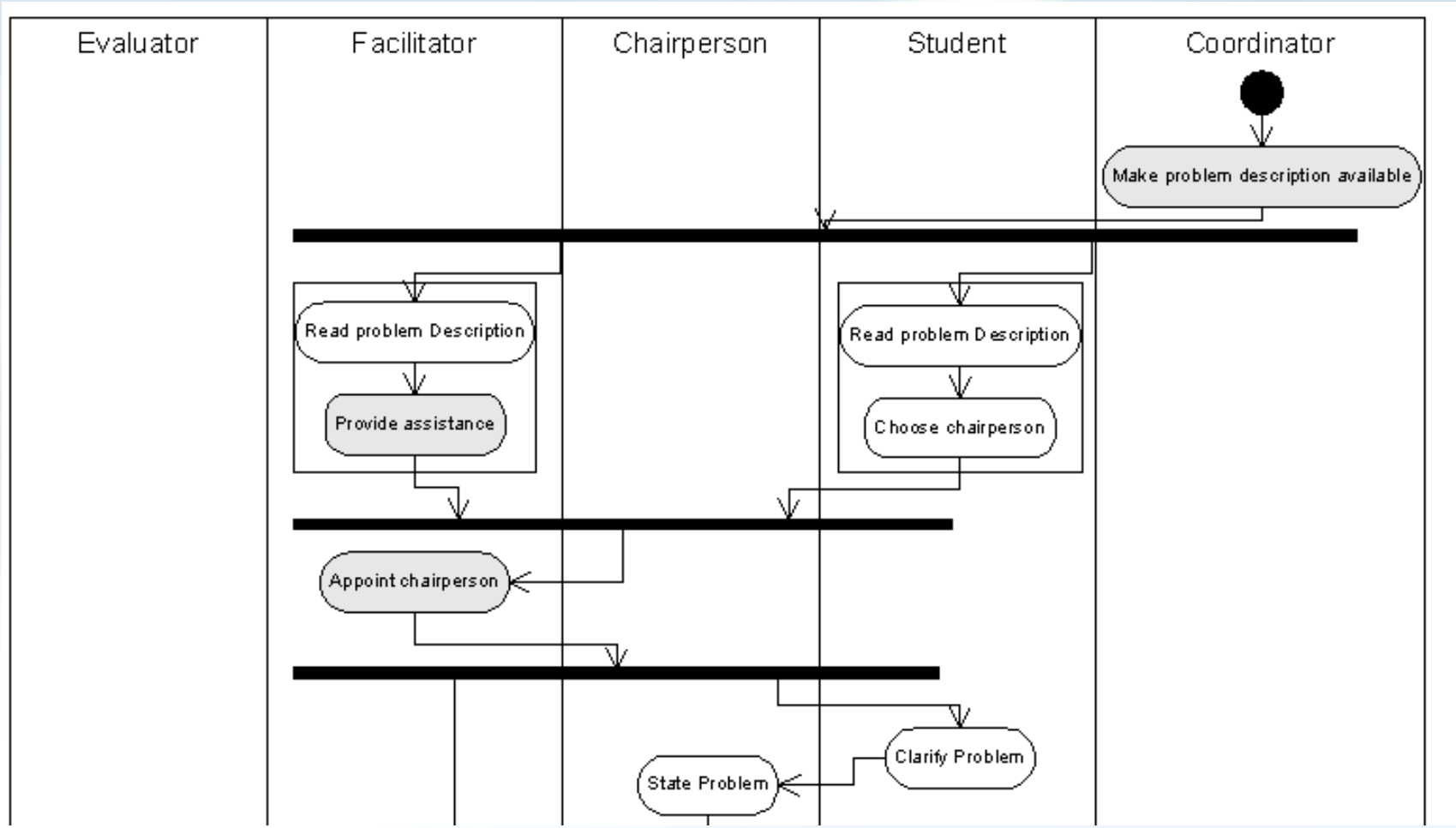
- Starting point is a narrative description of some educational process
  - "Students are presented with some information on Italian Wines. The tutor is available to take questions …"
  - "The lecturer posts a problem on the bulletin board. Each group of learners elects a spokesperson who summarises the problem and clarifies …."
  - "Think about your experiences as a school child, creating three statements which should be typed into a document and stored on the shared space. Once this is done, …."



A learning design process (2)

- Once examples of the meta-model concepts have been identified, a slightly more formal representation can be created (eg a table listing the sequence of activities, split by role)
- UML activity diagrams can be helpful
  - Used in the IMS LD Best Practice and Implementation Guide, but use is not mandated

UML Activity Diagram



A learning design process (3)

- What's next?
  - Say it with XML
- IMS LD has, in common with all IMS specs, a so-called XML binding
- If you represent your UoL in the data format indicated by the binding, a conforming application will be able to do the right thing

A learning design process (4)

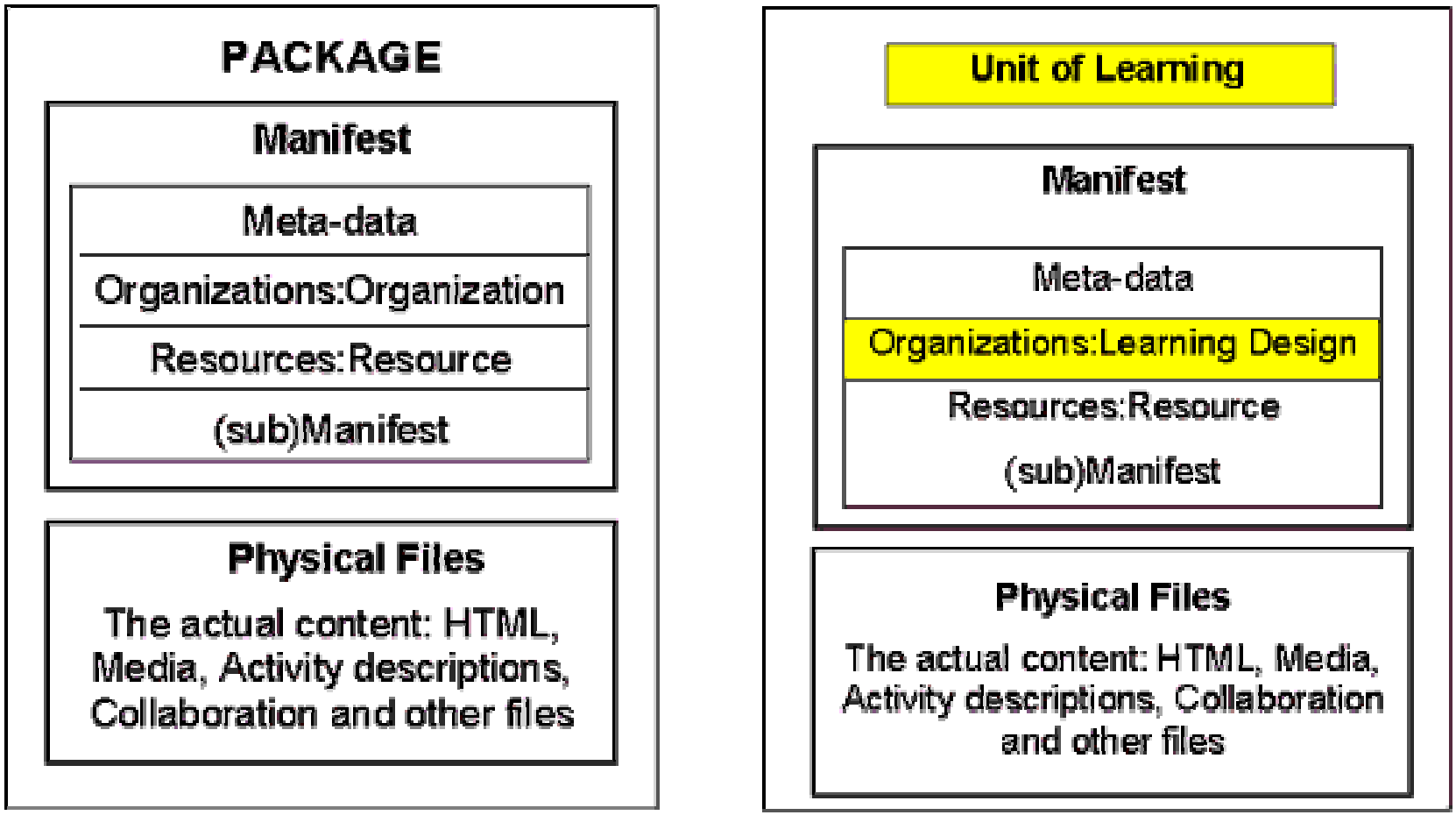
- In theory, this is all in the underworld of IT plumbing, from which we are shielded by applications
- In practice, today, we are not yet there in terms of tool support and sometimes have to deal with XML

```
<roles>
        <learner identifier="Learner">
                <title>Learner</title>
                <information>
                        <title>The Learner role</title>
                        <item identifierref="R-information-for-learner"/>
                </information>
        </learner>
</roles>
```

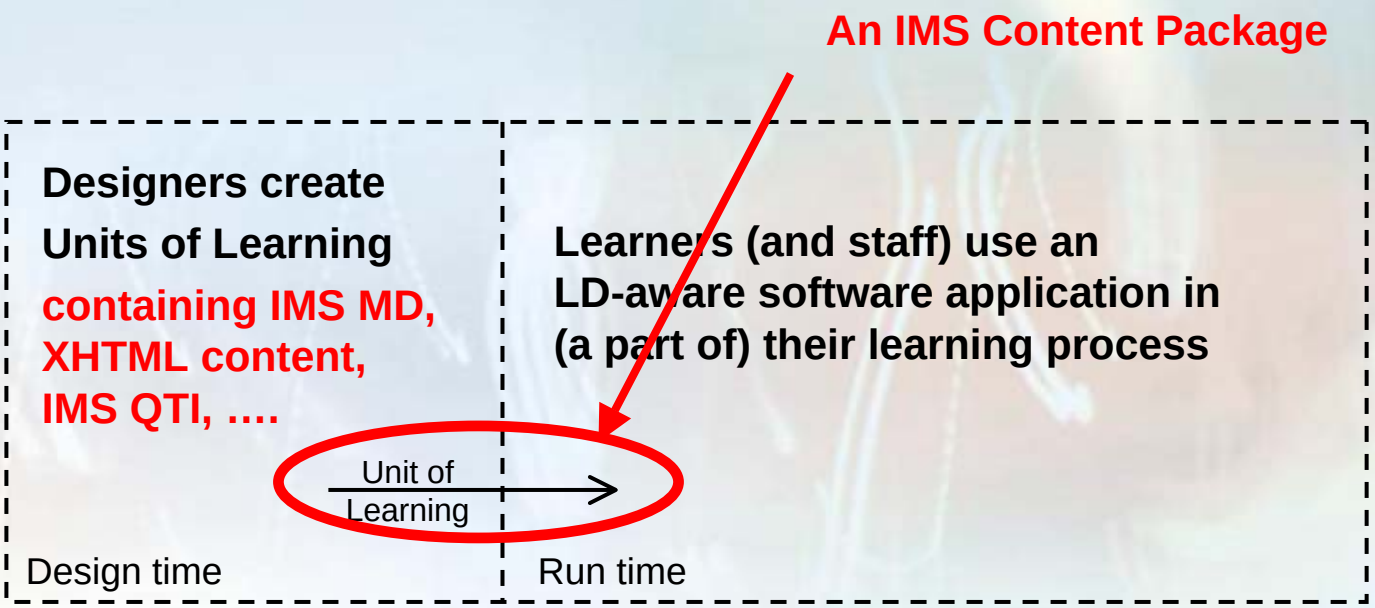
What’s the learning design process produce?

- An IMS Content Package
  - Used for exchange of content
- IMS Learning Design is integrated with an IMS Content Package as another kind of organization within the `<organizations>` element.
- An IMS content package is called a 'Unit of Learning' if and only if it includes a valid IMS learning-design element in the organizations part of the package's manifest.

LD and CP



How does IMS LD work?



IMS LD: The Levels

- Level A: Core concepts:
  - Roles, activities, environments, method
- Level B: Adds
  - Properties and Conditions
- Level C: Adds
  - Notifications

- The levels help when teaching about IMS LD & help tool developers in delivering incrementally, but should not get in the way;

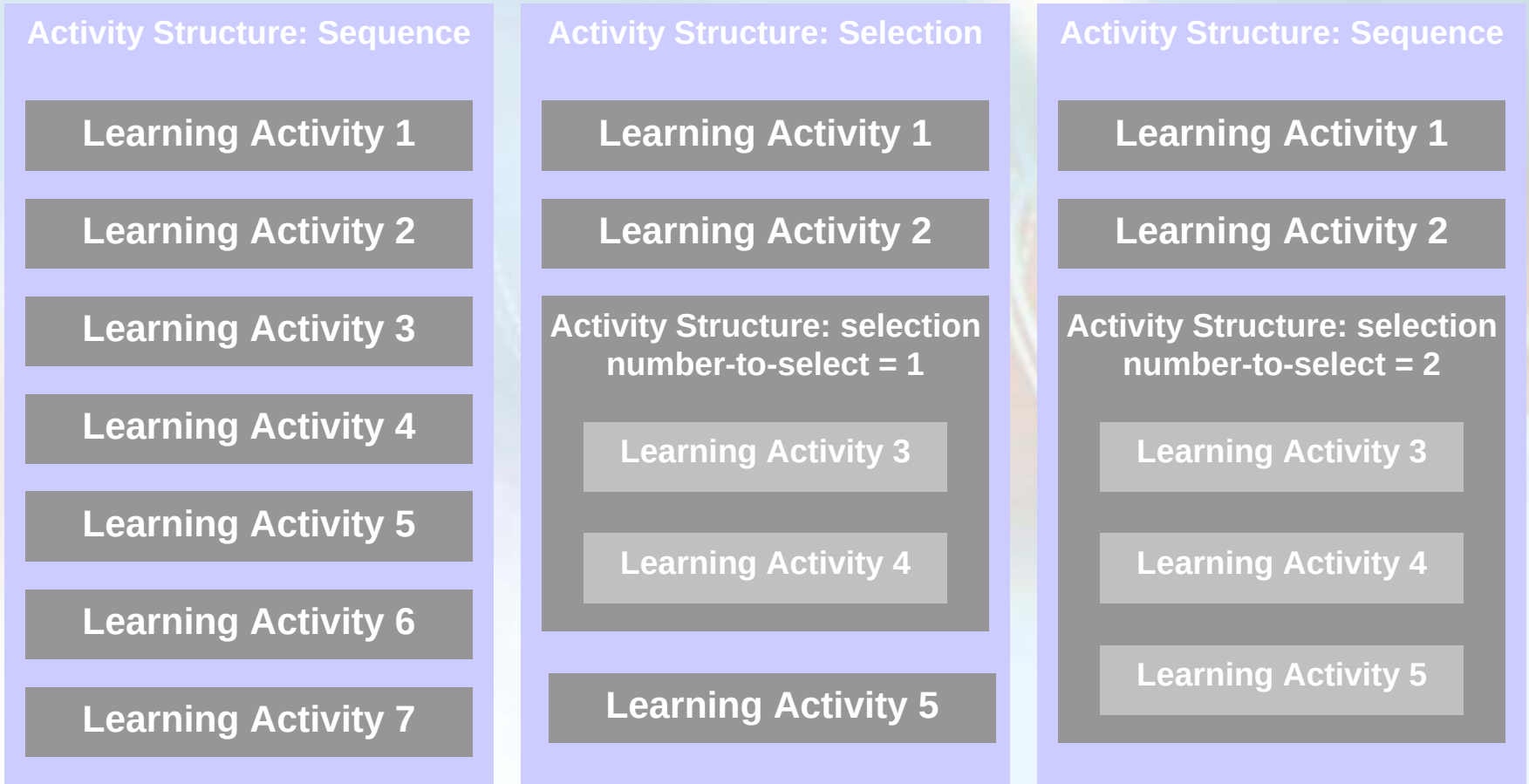
Level A core concepts

- Components
  - Roles
    - Eg Learner, Tutor, Mentor, Facilitator, ….
  - Learning/Support activities
    - What has to be performed
  - Activity structure
    - Sometimes activities need to be carried out in a *specified order* or the learner may *choose* what to do.
  - Environment
    - Materials might be needed to perform an activity
    - The learner might need to communicate with others
- Method
  - Play, Act, Role-Part

Activities and Activity Structures

- An activity has an activity-description
  - a resource which has content indicating what should be done - “do this to learn that”
- Activities can be structured …
- Do these activities in order
  - `SEQUENCE`
- Chose one of these alternatives
  - `SELECTION number-to-select=1`
- Do all (eg 4) of these activities but in any order
  - `SELECTION`

Activity Structures: Sequences vs selections



Environments

- Resources needed when performing activities)
  - Learning Objects
    - Web pages
    - MS-Word document
    - Pictures
    - Videos
    - etc
  - (Learning) Services
    - send-mail, conference, and index search

Completion

- Need to indicate under which conditions the flow “moves on”
- When/How does a Unit of Learning, a play, an act, an activity, finish?
  - Can be a time-limit or user-choice
- Can also add an on-completion element to give some feedback
  - Reference to a resource (eg XHTML file) in resources section
  - Could in turn reference sound, video, …

Levels B and C in a nutshell

- You can do quite a lot with level A, but certainly not everything you'd like to do
- However, adding just a few more elements opens many new doors
  - Allowing the learning flow to be influenced not just by user-choice or time-limit but by other factors
  - Allowing more sophisticated approaches to sequencing than provided by selection and sequence

Level B – properties & conditions

- Completion of activities, acts, etc can depend on properties
  - Only let this activity complete when these properties hold
- Completion of activities, acts, etc can influence properties
  - When this activity completes, set this property
- Conditions: if a certain situation holds, then show or hide something or change a property
  - which may in turn trigger another condition to fire and show or hide or change etc

Level C – notifications

- Notifications inform a role that something has happened
  - Via email
  - By setting a new activity
- Can trigger in the completion process
- Can trigger in conditions

Colin, that's rather a lot of information

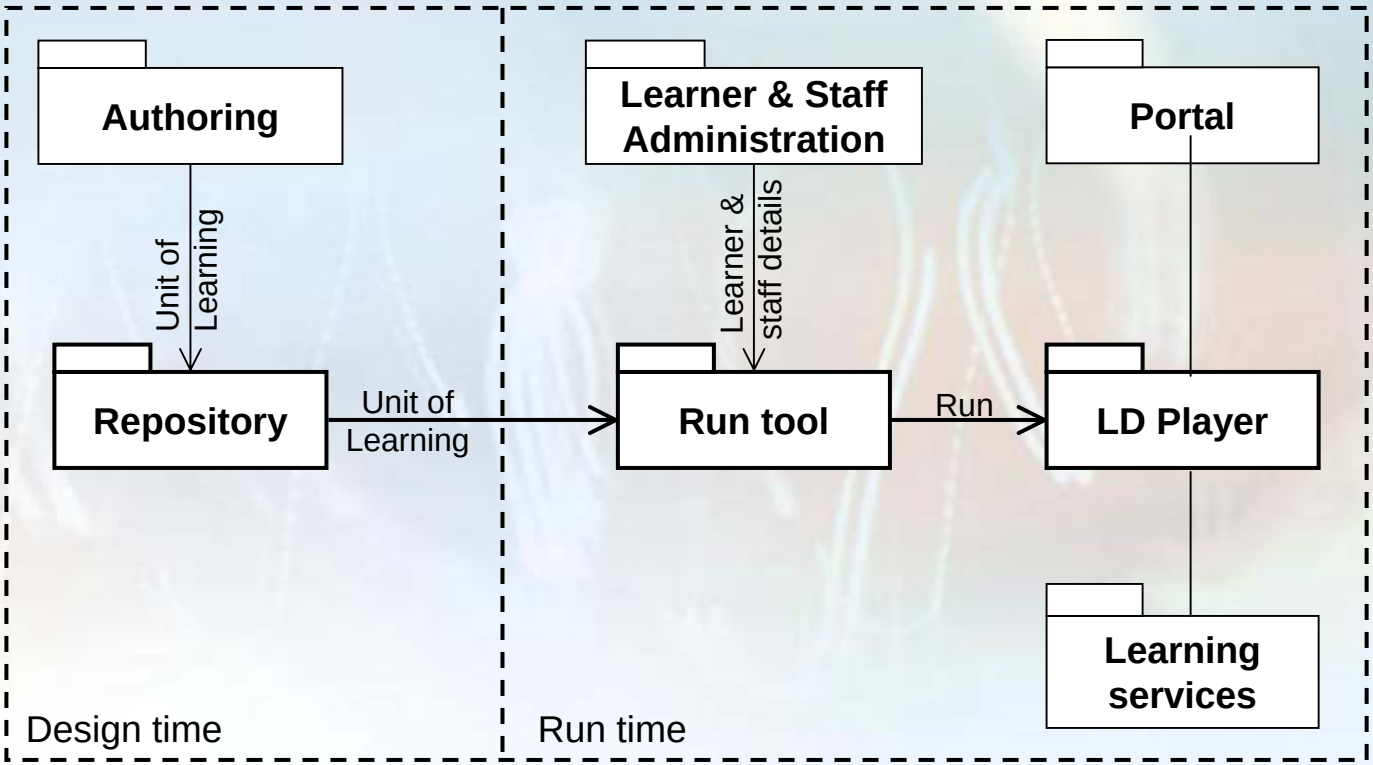
- True, but there's help available
- **www.unfold-project.net**

- **Aim:** to accelerate the adoption, implementation, use and further development of open standards such as IMS LD
- **How:** Via Communities of Practice

OK, but where are the tools?

- You will need:
  - A way of creating Units of Learning
  - A way of coupling an abstract Unit of Learning to specific learners (instantiating it in a “run”)
  - A way of playing the run so that learners/staff can experience the Unit of Learning
- End of 2004/start of 2005 will see authoring+player software being made available, together with examples

Architectural context



Summary: How does IMS LD work?

- The specification provides a language in which to describe learning processes;
- Software which is written to this specification can play such a description and support learners and staff in the learning process